

## Continuous Naphthenic Acid Removal Process from Crude Oil using Solvent Extraction

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High acid oil is regarded as low-quality oil and removal of naphthenic acid is the most crucial part of upgrading low quality oil, since acid crude oil cause corrosion on equipment and pipe plug. Many researches have carried out several methods to remove acid from crude oil. Extraction is one of the induced method. It is normally considered as a low efficiency method compared to other methods. However, economical advantage could be obtained by recycling the solvent and by the mild condition of the process. In this study, four-step extraction process is introduced to remove naphthenic acid continuously. In the first step, acid oil and solvent are mixed to extract naphthenic acid. Oil and solvent phase are separated by gravity in the second step. In the third step, used solvent is heated to evaporate ammonia. Finally, generated naphthenic acid phase are eliminated by LLE and acid-removed solvent could be reused as solvent in the first step. From this process naphthenic acid is removed continuously without additional solvent injection. According to several model oils, it shows meaningful level of naphthenic acid removal efficiency.